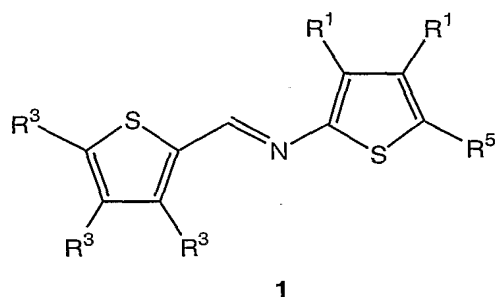


**WHAT IS CLAIMED IS:**

1. A method for preparing conjugated thiophene-based oligoazomethines of Formula 1:

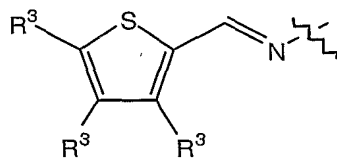


5 wherein:

R<sub>1</sub> is an electron withdrawing group selected from the group consisting of: -CN and -CO<sub>2</sub>R<sup>2</sup>, wherein R<sup>2</sup> is an aliphatic C<sub>1</sub>-C<sub>12</sub> alkyl chain;

R<sup>3</sup> is H or N(R<sup>4</sup>)<sub>2</sub>, wherein R<sup>4</sup> is an aliphatic C<sub>1</sub>-C<sub>4</sub> alkyl chain; and

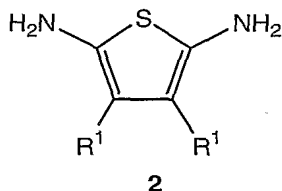
R<sup>5</sup> is NH<sub>2</sub> or



10

comprising:

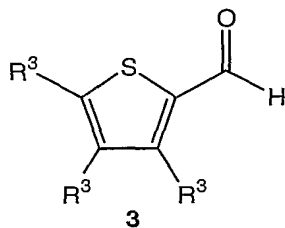
reacting a thiophene diamine of Formula 2:



wherein R<sub>1</sub> is an electron withdrawing group selected from the group consisting of: -

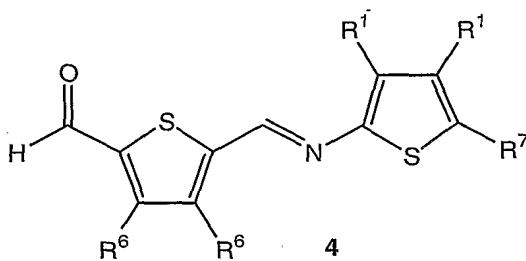
15 CN and -CO<sub>2</sub>R<sup>2</sup>, wherein R<sup>2</sup> is an aliphatic C<sub>1</sub>-C<sub>12</sub> alkyl chain, with an aromatic aldehyde of Formula 3:

59



wherein  $R_3$  is H or  $N(R^4)_2$ , wherein  $R^4$  is an aliphatic  $C_1$ - $C_4$  alkyl chain.

2. A method for preparing conjugated thiophene-based oligoazomethines of Formula 4:



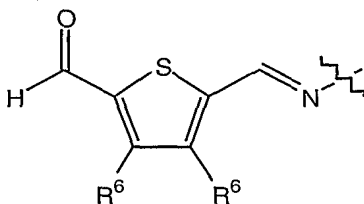
5

wherein:

$R_1$  is an electron withdrawing group selected from the group consisting of:  $-CN$  and  $-CO_2R^2$ , wherein  $R^2$  is an aliphatic  $C_1$ - $C_{12}$  alkyl chain;

$R^6$  is H or an aliphatic  $C_1$ - $C_{10}$  alkyl chain; and

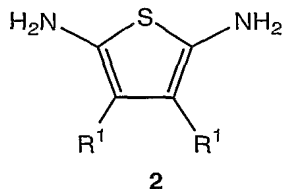
10  $R^7$  is  $NH_2$  or



comprising:

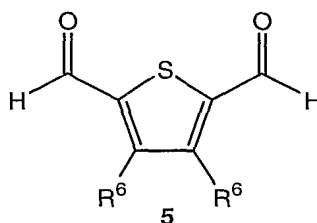
reacting a thiophene diamine of Formula 2:

60



wherein  $R_1$  is an electron withdrawing group selected from the group consisting of: -CN and  $-\text{CO}_2R^2$ , wherein  $R^2$  is an aliphatic  $\text{C}_1\text{-C}_{12}$  alkyl chain,

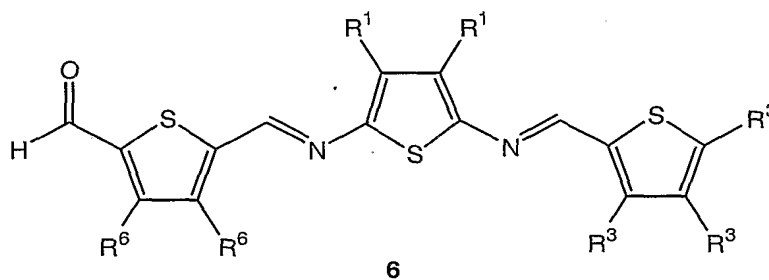
with an aromatic aldehyde of Formula 5:



5

wherein  $R^6$  is H or an aliphatic  $\text{C}_1\text{-C}_{10}$  alkyl chain.

3. A method for preparing conjugated thiophene-based oligoazomethines of Formula 6:



10 wherein:

$R_1$  is an electron withdrawing group selected from the group consisting of: -CN and  $-\text{CO}_2R^2$ , wherein  $R^2$  is an aliphatic  $\text{C}_1\text{-C}_{12}$  alkyl chain;

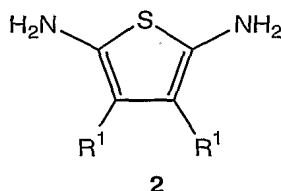
$R_3$  is H or  $\text{N}(R^4)_2$ , wherein  $R^4$  is an aliphatic  $\text{C}_1\text{-C}_4$  alkyl chain; and

61

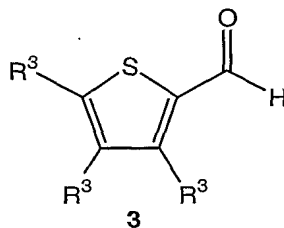
$R^6$  is H or an aliphatic  $C_1$ - $C_{10}$  alkyl chain;

comprising:

(a) reacting a thiophene diamine of Formula 2:

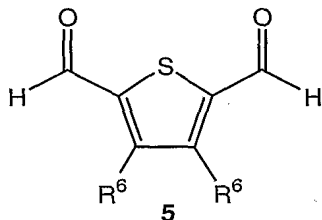


- 5 wherein  $R_1$  is an electron withdrawing group selected from the group consisting of: -CN and  $-\text{CO}_2R^2$ , wherein  $R^2$  is an aliphatic  $C_1$ - $C_{12}$  alkyl chain, with an aromatic aldehyde of Formula 3:



wherein  $R_3$  is H or  $\text{N}(R^4)_2$ , wherein  $R^4$  is an aliphatic  $C_1$ - $C_4$  alkyl chain,

- 10 (b) reacting the product of step (a) with an aromatic aldehyde of Formula 5:



wherein  $R^6$  is H or an aliphatic  $C_1$ - $C_{10}$  alkyl chain.